

REMARKS

Claims 1-21 are pending in the application. Claims 1 and 11 are currently amended. Applicant respectfully requests for allowance of all the pending claims based on the following discussion.

Rejections under 35 U.S.C. §102

Claims 1-7 and 9 are rejected under 35 USC 102(b) as being anticipated by US Patent No. 3,677,664 to Wycliffe et al. (hereinafter referred to as “Wycliffe”).

Independent claim 1 is directed to a screw pump comprising: a chamber defining with first and second externally threaded rotors mounted on respective shafts rotatably disposed for counter-rotation within the chamber a plurality of flow paths having respective fluid inlets wherein a first one and a second one of the respective inlets are located at a common low pressure side of the chamber, and wherein threads of the first and second rotors are intermeshed at a location adjacent to the first and second inlets, such that fluid entering the chamber via the first and second inlets is moved through the flow paths by the first and second rotors in a manner of positive displacement. As currently amended, claim 1 now includes language “*wherein the flow paths are isolated from each other such that pressure differentials can be maintained among the flow paths when the screw pump is in operation.*“

The added language is supported by the specification, for example as described in the specification on page 4, lines 25-29:

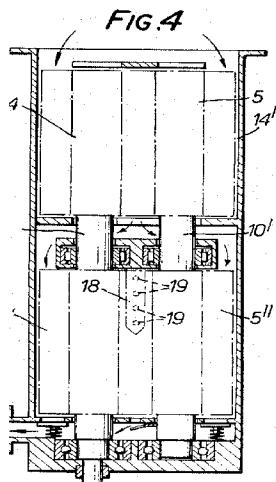
By defining two flow paths 38, 40 isolated from each other by the rotors 30, 32 until the paths merge at the pump outlet 24, pressure differentials between the flow paths 38, 40 can be substantially maintained, and so any fluctuation in the

pumping rate of one of the secondary pumps does not significantly affect the performance of the other secondary pump.

As a benefit of such arrangement, a single screw pump can be provided for backing simultaneously two secondary pumps, thereby reducing the cost and size of the footprint of the pumping arrangement for two process tools. *See, the specification from page 4, line 29 through page 5, line 2.*

Wycliffe does not teach or suggest the claim limitation “*wherein the flow paths are isolated from each other such that pressure differentials can be maintained among*

the flow paths when the screw pump is in operation.“ Examiner



equates the two arrows illustrated in FIG. 4 of Wycliffe to the two inlets of the claimed invention. However, Applicant respectfully argues that they are not equivalent or comparable.

FIG. 4 is a cross sectional view from the side, and the two arrows does not means Wycliffe’s pump has two separate inlets. As shown in FIG. 3 of Wycliffe, a cross sectional view from the top, a top plate 11 partially covers the top end of the rotors, their non-covered or exposed areas defining **an inlet port** (shown at 12 in dotted lines). *See, col. 2, lines 5-9.*

It is clear from FIG. 3 that Wycliffe

teaches a single, curve-shaped inlet port,

instead of two separate ports as Examiner

asserts. Since Wycliffe’s pump has a single

inlet port, it cannot provide two or more

isolated flow paths capable of maintaining

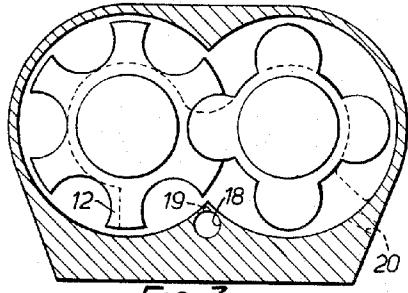


FIG. 3.

pressure differentials among them. As a result, Wycliffe's pump cannot back two or more separate pumps, as the claimed invention does.

As such, claim 1 is not anticipated by Wycliffe under 35 USC 102(b).

Accordingly, claims 6-7 and 9 that depend from claim 1 and include all the limitations recited therein are also not anticipated by Wycliffe under 35 U.S.C. 102(b).

Rejections under 35 U.S.C. §103

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wycliffe in view of the cited legal precedent.

It is Examiner's position that one having ordinary skill in the art of screw pump would have found it obvious to have utilized a first inlet at a pressure higher than a pressure at a second inlet. *See, the Office Action, page 4, lines 3-8.* However, Applicant respectfully disagrees. As discussed, Wycliffe does not teach or suggest multiple inlets. It teaches a single port screw pump, which does not enable pressure differentials at multiple inlets. Moreover, maintaining the pressure differentials requires isolation mechanism that does not exist in a conventional screw pump. This need is simply not recognized or discussed by Wycliffe. Thus, Applicant respectfully submits that Wycliffe provides insufficient evidentiary support for Examiner's position.

Examiner further asserts that there is nothing in the record which establishes that the claimed pressure differential between the first and second inlets presents a novel, unexpected result. *See, the Office Action, page 4, lines 8-10.* Examiner's attention is directed to the specification from pages 4, line 25 through page 5, line 2, which provides:

By defining two flow paths 38, 40 isolated from each other by the rotors 30, 32 until the paths merge at the pump outlet 24, pressure differentials between the flow paths 38, 40 can be substantially maintained, and so any fluctuation in the pumping rate of one of the secondary pumps does not significantly affect the performance of the other secondary pump. Thus, as shown in Figure 2, a single screw pump 10 can be provided for backing simultaneously two secondary pumps 50, 50', each having an exhaust 52, 52' connected to a respective inlet 20, 22 of the screw pump, thereby reducing the cost and size of the footprint of the pumping arrangement for two process tools.

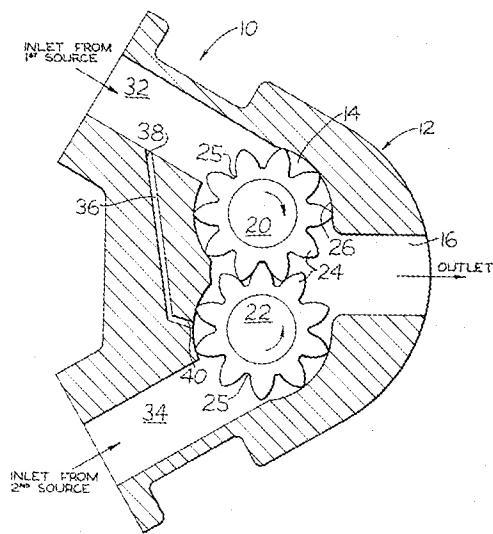
Based on the discussion above, Applicant respectfully submits that claim 8 is patentable under 35 USC 103(a) over Wycliffe in view of the cited legal precedent.

Claim 10 is rejected under 35 USC 103(a) as being unpatentable over Wycliffe in view of US Patent No. 6,196,810 to Taniguchi et al. (hereinafter referred to as “Taniguchi”).

As discussed above, Wycliffe does not teach or suggest the claim limitation “*wherein the flow paths are isolated from each other such that pressure differentials can be maintained among the flow paths when the screw pump is in operation.*” Taniguchi is cited for its disclosure of multi-stage pumps and does not cure the deficiency of Wycliffe. Since claim 10 depends on independent claim 1 and includes all the limitations recited therein, it is patentable under 35 USC 103(a) over Wycliffe in view of Taniguchi.

Claims 11 and 12 are rejected under 35 USC 103(a) as being unpatentable over US Patent No. 3,420,180 to Behrends et al. (hereinafter referred to as “Behrends”) in view of Taniguchi and Wycliffe.

Independent claim 11, as amended, includes claim limitation “*wherein the first and second flow paths are isolated from each other such that pressure differentials can be maintained between the first and second flow paths when the screw pump is in operation.*” Behrends does not teach or suggest



that the first and second flow paths are isolated from each other. As shown in the drawing of Behrends, the first flow passage 32 and the second flow passage 34 are connected by a conduit 36. It is clear from the drawing that as gear 22 rotates, fluid from the first flow passage 32 would mix with fluid from the second flow passage 34. The mixture of different fluids may

cause undesired chemical reactions.

As discussed above, neither Taniguchi nor Wycliffe disclose such claim limitation. Thus, independent claim 11 is patentable under 35 103(a) over Behrends in view of Taniguchi and Wycliffe. Accordingly, claim 12 that depends on claim 11 and includes all the limitations recited therein is patentable under 35 USC 103(a) over the cited prior art references as well.

Claims 11-17 and 19-21 are rejected under 35 USC 103(a) as being unpatentable over Wycliffe in view of Taniguchi.

As discussed above, claim 11 is patentable under 35 USC 103(a) over the cited references. Accordingly, claims 12-17 and 19-21 that depend from claim 11 and include all the limitations recited therein are also patentable under 35 USC 103(a) over the cited references.

Claim 18 is rejected under 35 USC 103(a) as being unpatentable over Wycliffe in view of Taniguchi and the cited legal precedent.

For reasons discussed above with regard to claim 8, Applicant respectfully submits that claim 18 is patentable under 35 USC 103(a) over Wycliffe in view of Taniguchi and the cited legal precedent.

CONCLUSION

Applicant has made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicant does not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Respectfully submitted,

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